

GR 00 P 4119 DE

- 9 -

Patent Claims

1. A method for fabricating a barrier layer having the following steps:

5 (a) oxidation of a substrate (1) composed of silicon in order to produce a substrate oxide (2) on the surface of the substrate (1);

(b) production of an oxygen-impervious layer (4) at the interface between the substrate oxide layer (2) and the substrate (1), the oxygen-impervious layer (4), as barrier, preventing the formation of metal silicide compounds between applied metal and the substrate silicon;

10 (c) etching of the substrate oxide layer (2) until the underlying oxygen-impervious layer (4) is uncovered.

2. The method as claimed in claim 1, characterized

in that the oxygen-impervious layer (4) is produced by implanting nitrogen ions into the substrate (1), the substrate (1) subsequently being oxidized in such a way that a substrate oxide layer (2) and an oxygen-impervious layer (4), which comprises a substrate-nitrogen compound, are formed.

25 3. The method as claimed in claim 1, characterized

in that the oxygen-impervious layer (4) is produced by the substrate oxide (2) produced on the surface of the substrate (1) being exposed to a nitrogen-rich gas in such a way that an oxygen-impervious layer (4), which comprises a substrate-nitrogen compound, forms at the interface (3) between the substrate oxide (2) and the substrate (1).

35 4. The method as claimed in claim 3, characterized

in that the substrate oxide (2) is exposed to an N₂ gas, an N₂O gas, an NO gas or an NH₃.

T05190 622860

GR 00 P 4119 DE

- 10 -

5. The method as claimed in one of the preceding claims,
characterized

5 in that the substrate-nitrogen compound comprises silicon nitride.

6. The method as claimed in one of the preceding claims 1 to 4,

10 characterized
in that the substrate-nitrogen compound comprises
silicon oxynitride.

7. The method as claimed in one of the preceding claims,
characterized

in that the substrate oxide layer is etched in a wet-chemical etching process or in a dry etching process.